Request Tracker (RT): A Tool for Software Change Control

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The steps involved in any change-control process are relatively obvious: request, approve, schedule, perform, verify. The trick is to identify, and track, specific tasks associated with changes in a given environment. The high-performance computing (HPC) software support team has begun to use an open-source product called RT (Request Tracker) to track changes to the software products installed on production computers in the Laboratory Integrated Computing Network (ICN).

RT capabilities

RT has built-in capabilities to manage task details at any level. Separate tickets can be generated for general tasks or detailed subtasks, and tickets can be grouped together by dependencies. For example, if a general ticket is defined for a software product update, then additional tickets can be entered for each machine or subset of machines. This allows incremental progress to be tracked more effectively.

Each ticket contains detailed history of all actions taken, from creation to email notifications, to each individual field update. If questions arise about how a change was managed, all the subtasks can be reviewed later. Having access to this level of detail is important for tracking the effectiveness of a change control process. It can also help improve the process for later requests.

RT allows actions to be linked to certain ticket updates. The most powerful action is to send notifications to a defined set of users whenever a ticket status changes. This improves cross-team collaboration by making sure everyone is up to date on the next required task.

Tickets can be reviewed through standardized reports, such as all "open" tickets, but RT's search tool also allows complex queries using any ticket fields (Fig. 1). These queries allow all users to quickly drill down to the most important information for that user, or in a specific context. Examples include all open tickets owned by a user, or all tickets containing this combination of terms.

RT's flexible customizations are even more important than the built-in features. HPC has added custom "status" and "machine" fields. Responsibility for software updates changes hands several times between multiple subteams, and the custom status field allows for easier communication when this hand-off occurs. Due to complexities in the production ICN environment, a software change is generally staged across the environment. Separate tickets for a custom list of machines make it practical to keep track of progress.

RT work in progress

One of the strengths of using the RT tool is the ability to customize it to fit the needs or adjust as better approaches are discovered. The custom status field has been updated to more accurately reflect the different steps of a software upgrade. Recent discussion clarified how these status values map to other stages of

software lifecycle, such as removing old versions. Notifications are being reduced from the built-in "daily" to a manageable "when something important happens," where "important" will surely continue to be a topic for discussion. Tracking granularity is being changed to one ticket per production machine. As a result, we are experimenting with an open-source add-on and ticket cloning to make ticket creation easier.

The teams involved in software change control meet regularly to discuss experiences. We have worked through initial discrepancies in the mechanics of ticket handling. We continue to add customizations, gradually reflecting the reality of multiple ticket hand-offs and special requirements of the ICN. RT is helping these cross-organizational teams keep better control over software changes in a complex production environment.

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Fig. 1.
Query of open tickets in process.